CLAIMS

We claim:

1. An isolated substantially homogeneous *mpl* ligand polypeptide.

2. An isolated substantially homogeneous *mpl* ligand characterized in that:
(1) the ligand stimulates the incorporation of labeled nucleotides (^{3}H-thymidine) into the DNA of IL-3 dependent Ba/F3 cells transfected with human *mpl* P; and
(2) the amino-terminal sequence of the ligand is selected from the group
SPAPPACDPRLLNKLLRDDHVLHGR (SEQ ID NO: *); and
SPAPPACDLRVLSKLLRDDHVLHSRL (SEQ ID NO: *).

3. An isolated *mpl* ligand polypeptide according to Claim 1, wherein the amino acid sequence of the polypeptide comprises amino acid residues 1 to X of Figure 8, where X is selected from the group 153, 164, 191, 205, 207, 217, 229, 245 and 332.

4. The polypeptide of Claim 3 that is unglycosylated.

5. An isolated substantially homogeneous *mpl* ligand polypeptide sharing at least 80% sequence identity with the polypeptide of Claim 3.

6. An isolated polypeptide encoded by a nucleic acid having a sequence that hybridizes under moderately stringent conditions to the nucleic acid molecules having a nucleic acid sequence provided in Figure 8.

7. The polypeptide of Claim 6 that is biologically active.

8. A fusion comprising the *mpl* ligand of Claim 3 fused to a heterologous polypeptide.

9. An antibody that is capable of binding the *mpl* ligand polypeptide of Claim 3.

10. A hybridoma cell line producing the antibody of Claim 9.

11. An isolated nucleic acid molecule encoding the *mpl* ligand polypeptide of Claim 1.

12. An isolated nucleic acid molecule encoding the *mpl* ligand polypeptide of Claim 3.

13. An isolated nucleic acid molecule comprising the open reading frame nucleic acid sequence shown in Figure 8 .

14. An isolated nucleic acid molecule selected from the group consisting of
(a) a cDNA clone comprising the nucleotide sequence of the coding region of the *mpl* ligand gene;
(b) a DNA sequence capable of hybridizing under stringent conditions to a clone of (a); and
(c) a genetic variant of any of the DNA sequences of (a) and (b) which encodes a polypeptide possessing a biological property of a naturally occurring *mpl* ligand polypeptide.

15. An isolated DNA molecule having a sequence capable of hybridizing to a DNA sequence provided in Figure 8 under moderately stringent conditions, wherein the DNA molecule encodes a biologically active *mpl* ligand polypeptide.

16. The nucleic acid molecule of Claim 11 further comprising a promoter operably linked to the nucleic acid molecule.

17. An expression vector comprising the nucleic acid sequence of Claim 11 operably linked to control sequences recognized by a host cell transformed with the vector.

18. A host cell transformed with the vector of Claim 17.

19. A method of using a nucleic acid molecule encoding the *mpl* ligand polypeptide to effect production of the *mpl* ligand polypeptide comprising culturing the host cell of Claim 18.

20. The method of Claim 19 wherein the *mpl* ligand polypeptide is recovered from the host cell

21. The method of Claim 19 wherein the *mpl* ligand polypeptide is recovered from the host cell culture medium.

22. A method of determining the presence of *mpl* ligand polypeptide, comprising hybridizing DNA encoding the *mpl* ligand polypeptide to a test sample nucleic acid and determining the presence of *mpl* ligand polypeptide DNA.

23. A method of amplifying a nucleic acid test sample comprising priming a nucleic acid polymerase reaction with nucleic acid encoding a *mpl* ligand polypeptide.

24. A composition comprising the *mpl* ligand polypeptide of Claim 1 and a pharmaceutically acceptable carrier.

25. A method for treating a mammal having or at risk for thrombocytopenia comprising administering to a mammal in need of such treatment a therapeutically effective amount of the composition of Claim 24.

26. The composition of Claim 24 further comprising a therapeutically effective amount of an agent selected from the group consisting of a cytokine, colony stimulating factor, and interleukin.

27. The composition of Claim 26 wherein the agent is selected from LIF, G-CSF, GM-CSF, M-CSF, EPO, IL-1, IL-2, IL-3, IL-5, IL-6, IL-7, IL-8, IL-9 and IL-11.